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(54) **THERMALLY STABLE SELF-LUBRICATING COATINGS**

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See application file for complete search history.

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(57) **ABSTRACT**

In some examples, an article includes a substrate and a coating on the substrate. The coating includes a stabilized microstructure including Magnéli oxide phase including an oxide of at least one of W, Mo, Nb, Ta, or Re. In some examples, a technique may include forming a coating including a refractory metal on a surface of a substrate. The technique also may include heat treating the coating at a temperature between about 500° C. and about 700° C. to form a coating including a stabilized microstructure including Magnéli oxide phase. The stabilized microstructure including Magnéli oxide phase may include an oxide of at least one of W, Mo, Nb, Ta, or Re. In some examples, the coating including the stabilized microstructure including Magnéli oxide phase exhibits a coefficient of friction that is at least 25% less than the coefficient of friction exhibited by the as-deposited coating under similar conditions.

20 Claims, 4 Drawing Sheets